BPA PROCEDURES FOR POWER SYSTEM EMERGENCIES

(Current as of 7/10/07 as of 3pm)

This document updates and incorporates, and therefore replaces:

(1) The Energy Shortage Procedures email sent 6/29 at 5:06PM from Kieran Connolly, and

(2) The BPA Emergency Action Plan sent Mon 7/2 4:57 PM from Robyn MacKay and forwarded 7/2/2007 at 5:06PM from Terry Larson, and

(3) It incorporates the Emergency protocols #4 sent 6/29 at 1:54PM by Bill Lamb (and forwarded 6/29 at 3:49PM by Robert Johnson and forwarded again 6/30 at 8:09PM by Angela Bolas).

Introduction:

The purpose of this procedure is to document the steps to coordinating energy shortage events. The goals of this procedure are to prevent or delay situations that would result in either the shedding of firm load or the interruption of mandated non-power operations. If those efforts fail this procedure also outlines the protocols to transition into emergency operations.

SECTION 1: DUTY SCHEDULER STEPS

SUMMARY OF DUTY SCHEDULER'S STEPS	
STEP 1:	**ADVANCED PLANNING**
STEP 2:	**REAL TIME PLANNING:**
STEP 3:	**IMPLEMENT ALERT ACTIONS** (When conditions develop rapidly it may become necessary to combine actions)
STEP 4:	**ISSUE MARKET ALERT** (If the marketing efforts do not appear to be sufficient)
STEP 5:	**REQUEST POWER SYSTEM EMERGENCY**
STEP 6:	**IMPLEMENT EMERGENCY ACTIONS** (Current as of 7/2/07 – and will be updated as needed)
STEP 7:	**CURTAILMENTS** (Duty Schedulers should not initiate curtailments of firm load independently)

STEP 1: ADVANCED PLANNING

If a FCRPS power shortage is well understood and anticipated in day-ahead or earlier planning, an Emergency Technical Management Team (TMT) meeting will be called. If Northwest or WECC-wide power shortages are anticipated in day-ahead or earlier planning, a NWPP Emergency Response Team (ERT) may be formed to determine a plan for the emergency.

NOTE: If either of these has been activated more specific guidance will be available – check the PGSP Operations Memo or other specific instructions from Schedule Planning.

STEP 2: REAL TIME PLANNING

Upon identifying conditions that may lead to insufficient generation to meet load obligations:

1. Determine the nature of the shortage:
   - When it will likely begin and end?
   - Is this an energy, capacity, or transmission shortage?
   - Will immediate resources free up water for the shortage period or, as in the case of a transmission limitation, will generation need to be shifted to solve the shortage?
2. Take all "Decrease Load "steps on Load Priorities.
3. Contact Technical Lead currently identified in PGSP Operations memo for actions after "use call list" on current Load Priorities. At this point, the Technical leads should assure communication is occurring with USACE and USBR regarding potential emergency conditions.
4. Whenever possible forewarn the marketing desk and the AGC dispatcher of the potential for an energy shortage.
5. If necessary have the Slice Desk help with communications.
6. Instruct marketing to implement their Emergency Protocols (SECTION 6) if you determine there is a risk that loads will exceed available capacity. (In conditions where you anticipate system capability will be stressed, purchases are a legitimate response to protect the hydraulic operation).
7. Prepare to load all available generation as hydro conditions allow.
8. Notify the AGC dispatcher of the potential for a real time energy shortage. In particular point out non-power constraints and sustainability issues that may not be readily apparent to the AGC dispatcher (e.g. MOP or draft limits).
9. Request information from the AGC dispatcher on any limitations on FCRPS generation due to transmission constraints. Information on the ability to operate Federal generation is not limited by Standards of Conduct.
10. Call out any technical support and management as needed from BPA as early as possible (all hours).
    - Contact PGSP per call list on Operations Memo and Scott Bettin.
    - Contact:
        a. Kieran Connolly - Generation Scheduling (PGS) manager and
        b. Steve Oliver - Vice President of Generation Asset Management (PG VP)

STEP 3: IMPLEMENT ALERT ACTIONS: Actions utilized to avoid these interrupting fish protection measures.

NOTE: BPA Duty Schedulers shall attempt to implement all available resources on the Alert Action Checklist before initiating the process to declare an emergency, prior to implementing the BPA Emergency Actions List. When conditions develop rapidly it may become necessary to combine actions.

- ☐ Timely energy/capacity purchases at prices up to the FERC WECC price cap (currently $400).
  _____
- ☐ Request that Corps and Reclamation return all units to service by canceling or postponing scheduled outages. (Makes all units available).
  -Corps (yes ___MW or No_____potential MW)
  -Reclamation (yes ___MW or No_____potential MW)
  other actions: _____
- ☐ Stop/delay Transmission O&M actions via AGC dispatcher.
  _____
- ☐ Put into service (on line) all possible generators (e.g., Grand Coulee pump-generators)
  -Corps (yes ___MW or No_____potential MW)
  -Reclamation (yes ___MW or No_____potential MW)
  other actions: _____
- ☐ Reshape flows within objectives at specific projects to meet generation needs (deal with the immediate problem – this may throw the river out of whack – if applicable spill upstream projects to position water downstream)._____
- ☐ Cut prescheduled PNCA storage return to others
  _____
- ☐ Request Exceedance of draft limits
  -Corps (yes ___MW or No_____potential MW)
  -Reclamation (yes ___MW or No_____potential MW)
  other actions: _____
- ☐ Stop/Start pumping at Grand Coulee. (yes or no)
- ☐ Request tailwater rate of change exceedance at Bonneville Dam. (yes or no from RCC)
- ☐ Cancel gill netting at BON (contact RCC)
- ☐ Reschedule power system maintenance to minimize impact fish protection measures.
- ☐ Request Grant place negative bias on GCL (call GRT dispatcher). (This only helps if we are at 1.5 ft limit, no extra capacity)

STEP 4: ISSUE MARKET ALERT (If at any time during the implementation of the Alert Actions, it is the Duty Scheduler's judgment that those actions will not be sufficient to resolve the shortage, then the Duty Scheduler may determine to issue market alert earlier during step 3.)

Request that the AGC dispatcher issue a WECCnet message requesting any parties with available generation to contact Power Services real time marketing. The message should contain the following information:

> Subject: Merchant Alert:
>
> Declaration that the BPA merchant has exhausted all available resource flexibility, has explored the market to the best of their ability and needs to acquire energy for hour(s) ___ to avoid a NERC Energy Emergency Alert.
>
> If parties have available energy supplies please Contact {Name} at (503) 230 3650 or (503) 230 3651
>
> Note: Quantity and price information are not included in the message, however policy in these conditions is to buy sufficient power to resolve the emergency, up to the mandated price caps.

STEP 5: REQUEST POWER SYSTEM EMERGENCY

1. Duty Scheduler has exhausted options up to this point (has talked with AGC dispatcher and hopefully Power Services management).

Note: It is critical to attempt to confirm the decision to call a power emergency with either: PGSP, PGS, or PG, prior to this point--if at all possible.

2. The appropriate BPA manager or designee will:
   a. Notify the TMT and IT (Implementation Team) chairpersons at the earliest time practicable, within one business day minimum.
   b. Present the details of the event to TMT or IT as appropriate at the earliest time practicable.
   c. Notify the Regional Forum prior to the implementation of Emergency Actions when possible.
3. Duty Scheduler will request the declaration of a Power System Emergency via AGC dispatcher. The AGC dispatcher will request the NWPP Reliability Coordinator to make a declaration of emergency. (i.e. a NERC Alert)
4. **Whether or not Transmission dispatch, or the NWPP concurs and issues a NERC Alert emergency declaration, at this point in time BPA Power has declared a power emergency and may act to mitigate that emergency on that basis.**
5. Duty Scheduler implements the BPA Emergency Actions List

STEP 6: IMPLEMENT EMERGENCY ACTIONS: Current as of 7/2/07

INTRODUCTION:

1. Emergency Actions will not be implemented unless a declaration of a Power System Emergency is requested. (Technically BPA requests that the NERC Reliability Coordinator declares a Power System Emergency.)
2. This list was developed and prioritized by BPA through discussions with TMT representatives and is intended to minimize impacts to fishery operations.
3. The list is intended to give priority guidance to BPA Duty Schedulers; actual implementation may vary depending on the emergency situation.
4. Modification to the actions taken may be requested via TMT and/or a new prioritized list may be developed as conditions change

PREPATORY STEPS:

☐ Ensure Corps/TMT is notified of BPA's intent to implement the list of BPA Emergency Actions.

Note: The Technical Lead or designee should use the Protocol to Notify Court and Plaintiffs of Departures from Fish Protection Measures to make appropriate internal contacts to start the notification process.

☐ Coordinate with the AGC dispatcher to identify whether any steps need to be skipped due to transmission limitations that will make the step unavailable.

BPA EMERGENCY ACTIONS:

(MW amounts below are estimates and will be calculated based on: Spill Reduction Amount x H/K. Since the values are only estimates of potential power, and actual operating conditions could cause this to vary significantly, the order and extent of the actual implementation of the actions in this list may be dictated by specific emergency conditions.)

April – August period

- Increase generation at MCN to operate outside 1% up to 16.5 kcfs per unit
- Increase generation at BON to operate outside 1% up to full load.
- Increase generation at JDA to operate outside 1% up to full load.
- Increase generation at TDA to operate outside 1% up to full load.
- Reduce spill at IHR to RSW (19 kcfs) 133 MW
- Reduce spill at LWG to 9 kcfs 70 MW
- Reduce spill at LWG to 0 63 MW
- Reduce spill at LGS to 0 77 MW
- Reduce spill at LMN to 0 119 MW
- Reduce spill at IHR to RSW only (9 kcfs) 180 MW
- Reduce spill at IHR to 0 133 MW
  (Transmission constraints may limit the use of the Snake projects)
- Reduce spill at BON to 50 kcfs while maintain B2CC spill 105/210 MW

- Reduce spill at MCN to 20% of flow 180 MW
- Reduce spill at BON to 0 200 MW
- Reduce spill at JDA to 0 338 MW
- Reduce spill at TDA to 30% 106 MW
- Reduce spill at TDA to 0 324MW
- Reduce spill at MCN to 0 (to save water for future hr.
- **Increase spill to move water to downstream projects (ADDED BY PGSD MGR)**

September– March period

- Shut off adult fish attraction BON
- Shut off TDA sluiceway
- Violation of BiOp ramp rates at HGH and LIB
- Increase project drafts that might impact spring refill.(HGH/LIB/DWR/ALF)

STEP 7: CURTAILMENTS: NOTE: Duty Scheduler should not initiate curtailments of firm load independently

1. Curtailments will be directed by either:
   a. PG VP for power emergencies or,
   b. AGC dispatcher for transmission system stability.
2. PG VP may direct the Duty Scheduler to request that the AGC Dispatcher (Dispatcher will in turn direct TS Scheduling to) implement the curtailment of firm loads. Direction to curtail firm loads by the PG VP will only occur if such curtailments are deemed not to impact human health and safety.
3. Power Services scheduling (PTK/PTFR) should be prepared to identify the schedules and tags to be curtailed and convey that information to Transmission Scheduling.

Note: This process is not currently completed and available as a mitigation action.

SECTION 2: RESOURCES

Related Procedures

1. DSO 332 – Realtime Energy Shortage Emergency
2. TMT Emergency Protocols
3. Load Priorities Memo
4. Current Operations Memo
5. Curtailment Procedure
6. Protocol to Notify Court and Plaintiffs of Departures from Fish Protection Measures

SECTION 3: NERC ALERTS

When previous actions appear to be insufficient to safeguard the system operation the Duty Scheduler should contact the AGC dispatcher and request the declaration of an energy shortage NERC Alert by the NWPP Reliability Coordinator. The AGC dispatcher is authorized to directly seek sources of generation from other balancing authorities or IPPs within the control area. Coordinate with the AGC dispatcher on any sources he/she finds.

Situations for initiating alert when:

- BPA is, or expects to be, unable to provide its customers' energy requirements, and has been unsuccessful in locating other systems with available resources from which to purchase, or
- BPA cannot schedule necessary resources due to, for example, Available Transfer Capability (ATC) transmission limitations.

Conditions for Duty Scheduler to request NERC Alerts 1, 2 or 3:

1. **NERC Alert One:** If it appears that all available resources, including imports, are committed to meet firm load, firm transactions, and reserve commitments; and, there is concern about sustaining required operating reserve
2. **NERC Alert Two**: If it will be necessary to curtail *non-firm energy sales and/or use operating reserves to meet firm loads, request that the AGC dispatcher contact the NWPP Reliability Coordinator to declare an. (*Note: *Since Power Services does not generally make non-firm energy sales it may be necessary to move directly to Alert Three).*
3. **NERC Alert Three:** If it appears that there will be insufficient generation to meet load even after the steps in an Alert Two.

SECTION 4: NERC DEFINITIONS

1. Alert 1 — All available resources in use.

Circumstances:

- Balancing Authority, Reserve Sharing Group, or Load Serving Entity foresees or is experiencing conditions where all available resources are committed to meet firm load, firm transactions, and reserve commitments, and is concerned about sustaining its required Operating Reserves, and
- Non-firm wholesale energy sales (other than those that are recallable to meet reserve requirements) have been curtailed.

2. Alert 2 — Load management procedures in effect.

Circumstances:

- Balancing Authority, Reserve Sharing Group, or Load Serving Entity is no longer able to provide its customers' expected energy requirements, and is designated an Energy Deficient Entity.
- Energy Deficient Entity foresees or has implemented procedures up to, but excluding, interruption of firm load commitments. When time permits, these procedures may include, but are not limited to:
- Public appeals to reduce demand.
    - Voltage reduction.
    - Interruption of non-firm end use loads in accordance with applicable contracts.
    - Demand-side management.
    - Utility load conservation measures.

3. Alert 3 — Firm load interruption imminent or in progress.

Circumstances:

- Balancing Authority or Load Serving Entity foresees or has implemented firm load obligation interruption. The available energy to the Energy Deficient Entity, as determined from Alert 2, is only accessible with actions taken to increase transmission transfer capabilities.

SECTION 5: POLICY FOR AVOIDING OR MINIMIZING IMPACT TO FISH PROTECTION MEASURES

1. **Overview – please see Section 1 above for implementation.**
   Interruptions or adjustments of the fish protection measures per the current Biological Opinions and associated operational documents may result from operations required to maintain power system reliability.

   BPA will utilize all reasonable or available actions to **avoid interrupting** (prior to impacting) fish protection measures. Any operation that **impacts** fish protection measures for this reason is considered a Power System Emergency and will be managed via Emergency Actions. Emergency Actions are viewed by the Bonneville Power Administration (BPA) as a last resort and will not be used in place of long-term investments necessary to allow full, uninterrupted implementation of the planned reservoir operations while maintaining other project purposes.

   When emergencies occur, the BPA will work with TMT to adjust operations as soon as reasonably possible to provide "planned for life cycle survival" with priority given to "in-time and in-place actions". (*This does not create legal rights or obligations on the part of any party.*)

   BPA will implement operations consistent with the BPA Emergency Actions List, direction from TMT or other groups, Standard Operating Procedures for specific projects, and/or guidance from appropriate Federal agencies to resolve the event. The implementation of Emergency Actions requires a request for declaration of a Power System Emergency and notification to the Regional Forum at the earliest time practicable.

2. **Regional Executive Intervention**
   Discussion of emergencies with effects of exceptional magnitude or duration will include involvement of the Regional Executives (e.g. 2001 drought operations and power emergency).

3. **Alert Actions (used prior to Power System Emergency)**
   Alert Actions are implemented to avoid or minimize potential impacts to mandated fishery operations. They are possible actions that may be implemented as possible prior to implementing actions that result in Power System Emergencies.

4. **Emergency Actions (used once a Power System Emergency is declared)**
   Emergency Actions are operations that result in interruption to fish protection measures. These actions are used as a last resort and are not implemented until a Power System Emergency is requested to be declared.

5. **Notification Procedures**

The appropriate BPA manager or designee will:

a. Notify the TMT and IT (Implementation Team) chairpersons at the earliest time practicable.
b. Present the details of the event to TMT or IT as appropriate at the earliest time practicable, within one business day minimum.
c. Notify the Regional Forum prior to the implementation of Emergency Actions when possible.

6. **Offsetting Adverse Effects of Emergency Actions**
When Emergency Actions are implemented that cause adverse affects to fish protection measures, the TMT will assess the magnitude of the adverse effect and provide information on measures available to offset it. Alternative operations to offset adverse effects "in-place, in-kind" in a timely manner shall receive the highest priority. The members of the Regional Forum agree to cooperate in the development of this information for consideration through the TMT process.

SECTION 6: Emergency Protocols -- BPA Insufficient Generation For Real-time Marketer Desk As of June 29, 2007

Situation: Upon identifying conditions that may lead to BPA having insufficient generation to meet load obligations in forthcoming hour(s):

Step 1 **At the earliest possible time,** the hydro desk will notify the real-time marketer of potential insufficient generation. If there is any doubt as to whether an insufficient generation condition is eminent, the real-time marketer will assume insufficiency and proceed to purchase amounts as directed by the hydro desk. **Purchase at any price** as needed to remove the concern regarding insufficient generation in forthcoming hour(s).

Step 2 **Purchases amounts needed to remove the concern of insufficiency. If sufficient purchases are not available then:**

Step 3 **Aggressively pursue mutually agreed upon schedule curtailments ("buy-backs").**

Step 4 **If insufficiency still in question upon exhausting all direct purchases and bilateral schedule curtailments,** direct the hydro desk to request that the AGC dispatcher (Transmission Services) issue a WECC "exploder" (WECCnet messaging system) requesting any parties with available generation to contact Power Services real time marketing.

Step 5 **If WECCnet message does not result in eliminating the potential or expected insufficiency go to next step.**

Step 6 **Hydro desk will contact Power Services Generation Management (Steve Oliver, et. al.) and Generation Scheduling Management (Kieran Connolly, et. al.).**

Real-time Marketer contact Bill Lamb and Alex Spain.

Process Diagram for Power and Transmission Load/Resource Imbalance Emergency Determination and Resolution